

APPENDIX A
Complete Set of Claims Pursuant to 37 CFR § 1.125

1. (Previously Amended) An ink jet recording head driving method, the ink jet recording head having a plurality of nozzles and a plurality of pressure generating chambers and piezoelectric actuators corresponding thereto, said process comprising:

scanning said ink jet recording head in a first direction while simultaneously generating a plurality of drive waveform signals;

selecting for each of said plurality of nozzles any one or none of said plurality of drive waveform signals; and

applying said selected drive waveform signals to respective piezoelectric actuators corresponding to said plurality of nozzles, said plurality of drive waveform signals are selected and generated at the time of said scanning in the first direction so that dots with a plurality of gray scale values are generated.

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2. (Currently and Previously Amended) An ink jet recording head driving method, the ink jet recording head having a plurality of nozzles and a plurality of pressure generating chambers and piezoelectric actuators corresponding thereto, said process comprising:

scanning said ink jet recording head in a first direction while simultaneously generating a plurality of drive waveform signals;

selecting for each of said plurality of nozzles any one or none of said plurality of drive waveform signals; and

applying said selected drive waveform signals to respective piezoelectric actuators corresponding to said plurality of nozzles said plurality of drive waveform signals are selected and generated at the time of said scanning in the first direction so that dots with a plurality of gray scale values are generated. ~~The ink jet recording head driving method claim 1, characterized in that at least one of said plurality of drive waveform signals is different from a drive waveform signal generated during a previously executed dot forming process.~~

3. (Previously Amended) The ink jet recording head driving method according to claim 1, characterized in that drive waveform signals for discharging ink droplets with a large jet amount of ink and drive waveform signals for discharging ink droplets with a small jet amount of ink are generated simultaneously.

4. (Previously Amended) The ink jet recording head driving method according to claim 1, characterized in that drive waveform signals for discharging ink droplets with a large jet amount of ink and drive waveform signals for discharging ink droplets with a small jet amount are alternately generated.

5. (Previously Amended) The ink jet recording head driving method claim 1, characterized in that said dot forming process is executed at least twice on a same place of said recording medium. ?

6. (Previously Amended) The ink jet recording head driving method according to claim 5, characterized in that during said dot forming process, nozzles that are positioned at a different place from the nozzles used during a previously executed dot forming process pass the place opposite the same place of said recording medium.

7. (Previously Amended) The ink jet recording head driving method according to claim 5, characterized in that during the dot forming process, nozzles which are positioned at the same place as the nozzles used during the previously executed dot forming process pass the place opposite the same place of said recording medium.

8. (Previously Amended) The ink jet recording head driving method according to claim 6, characterized in that the combination of drive waveform signals is determined on the basis of a number of times of said dot forming process is performed and the number of times the same or a different nozzles a nozzle passes the place opposite the same place of said recording medium.

9. (Previously Amended) The ink jet recording head driving method according to claim 8, characterized in that the number of times the dot forming process is performed is

determined based on a high-speed printing mode that is for printing in a high-speed and a high-quality image mode.

10. (Previously Amended) An ink jet recording head driving circuit the ink jet recording head having a plurality of nozzles and a plurality of pressure generating chambers and corresponding piezoelectric actuators corresponding thereto, said ink jet recording head driving circuit in comprising:

recording means for recording drive waveform information for drive waveform signals;

waveform generating means for simultaneously generating a plurality of drive waveform signals based on said drive waveform information read from said recording means;

control means for moving said ink jet recording head and selecting, for each of said plurality of nozzles, any one or none of the plurality of drive waveform signals; and

drive means for applying said drive waveform signal to said piezoelectric actuators by selecting none or one of a plurality of drive waveform signals output from said drive generating means generated at the time of said scanning in the first direction so that dots with a plurality of gray scale values are generated.

11. (Currently and Previously Amended) An ink jet recording head driving circuit having a plurality of nozzles and a plurality of pressure generating chambers and corresponding piezoelectric actuators corresponding thereto, said ink jet recording head driving circuit in comprising:

recording means for recording drive waveform information for drive waveform signals;

waveform generating means for simultaneously generating a plurality of drive waveform signals based on said drive waveform information read from said recording means;

control means for moving said ink jet recording head and selecting, for each of said plurality of nozzles, any one or none of the plurality of drive waveform signals; and

drive means for applying said drive waveform signal to said piezoelectric actuators by selecting none or one of a plurality of drive waveform signals output from said drive generating

means generated at the time of said scanning in the first direction so that dots with a plurality of gray scale values are generated according to claim 10, characterized in that said waveform generating means generates at least one drive waveform signal that is different from any of a plurality of drive waveform signals generated at a previous scanning of said ink jet recording head in said first direction.

12. (Previously Amended) An ink jet recording head driving circuit according to claim 10, characterized in that said waveform generating means simultaneously generates drive waveform signals for discharging ink droplets with a large amount of ink and drive waveforms for discharging ink droplets with a small amount of ink, in combination.

13. (Previously Amended) An ink jet recording head driving circuit according to claim 10, characterized in that said waveform generating means alternately generates a plurality of drive waveform signals for discharging ink droplets with a relatively large amount of ink and drive waveform signals for discharging a relatively small amount of ink at every scanning of said ink jet recording head in said first direction.

14. (Previously Amended) An ink jet recording head driving circuit according to claim 10, characterized in that said control means selects said drive waveform signals for execution at least two times in a same place of said recording medium.

15. (Previously Amended) The ink jet recording head driving circuit according to claim 14, characterized in that said control means makes nozzles, which are positioned at a different place from the nozzles used during the scanning of the ink jet recording head in the first direction, pass the place opposite the first place of said recording medium.

16. (Previously Amended) The ink jet recording head driving circuit according to claim 14, characterized in that said control means makes nozzles, which are positioned at the same place as the nozzles used for scanning of said ink jet recording head in the first direction, pass the place opposite the same place of said recording medium.

17. (Previously Amended) The ink jet recording head driving circuit according to claim 15, characterized in that said control means selects said drive waveform signals on the basis of supplied data.

18. (Previously Amended) The ink jet recording head driving circuit according to claim 17, characterized in that a combination of drive waveform signals is determined on the basis of a number of times said ink jet recording head scans and a number of times a same or different nozzle passes a place opposite the same place of said recording medium.

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19. (Previously Amended) The ink jet recording head driving circuit according to claim 18, characterized in that the number of times said ink jet recording head scans and the number of times whereof the same or different nozzle passes the place opposite and the same place of said recording medium is determined on the basis of a high-speed printing mode for printing a high-speed and a high-quality image.

20. (Previously Amended) The ink jet recording head driving circuit according to claim 15, characterized in that said control means determines a number of times said ink jet recording head scans in the first direction and a number of times same or a different nozzle passes the place opposite the same place of said recording medium on the basis of a high-speed printing mode, determines a combination of drive waveform signals selected and generates said waveform selecting data on the basis of the determined combination of said drive waveform signals.
